REMARKS

I. Introduction

Claims 12-17, 20-23, and 25 are pending in the application. In the Office Action dated June 8, 2010, the Examiner rejected claims 12-17, 20-23, and 25 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement; rejected claim 14 under 35 U.S.C. § 112, second paragraph, as being indefinite; rejected claims 12-14, 16, 17, 20-23, and 25 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 6,242,808 ("Shimizu") in view of U.S. Pat. No. 4,309,225 ("Fan") and Qing-Tang Jiang, et al., "Line Width Dependence of Copper Resistivity," IEEE 2001 ("Jiang"); and rejected claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Fan, Jiang, and Japanese Patent Pub. No. JP 61-30027 ("Higuchi"). In this Amendment, Applicants have amended claims 1, 14, 23, and 25.

II. Rejection Under 35 U.S.C. § 112, First Paragraph

In the Office Action, the Examiner rejected claims 12-17, 20-23, and 25 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner asserts that there is no support in the specification for the limitations in claims 12, 23, and 25 that the second grain size is "enlarged exclusively" compared to the first grain size, and that there is no support for the limitation in claim 14 that the primary and secondary interconnects are exclusively lengthened in the direction of movement of the thermal region. Applicants respectfully disagree.

With respect to claims 12, 23, and 25, paragraphs [0012]-[0013] of the present application discuss a thermal region being moved over a metal-containing starting layer such that after recrystallization, the metal-containing layer is recrystallized in the direction of movement of the thermal region. Further, paragraph [0029] of the present application discusses that after recrystalllization, grains of the metal-containing layer are lengthened in the direction of movement of the thermal region or the direction of interconnect. Moreover, Applicants note that Fig. 3 of the present application illustrates grains of the metal-containing layer being lengthened in the direction of movement of

the thermal region and the seed layer bounding the metal-containing layer preventing the metal-containing layer from enlarging in other directions. At least these portions of the present application support the element in claims 12, 23, and 25 that "the second grain size being enlarged exclusively with respect to the first grain size such that the second grain size is lengthened with respect to the first grain size in the direction of the movement of the thermal region."

Applicants note that claim 14 has been amended to remove the language objected to by the Examiner that the primary and secondary interconnects are exclusively lenghthened in the direction of movement of the thermal region.

Applicants request reconsideration of the rejection of claims 12-17, 20-23, and 25 under 35 U.S.C. § 112, first paragraph, in light of the foregoing remarks.

III. Rejections Under 35 U.S.C. § 103(a)

Independent claims 12, 23, and 25 each generally recite producing a locally delimited thermal region in the finely patterned metal-containing interconnect and moving the locally delimited thermal region in the finely patterned metal-containing interconnect in a direction of the interconnect and parallel to the first and second portions of the seed layer in such a way that a recrystallization of the interconnect is carried out for the purpose of producing an interconnect having a second grain size, ***the second grain size being enlarged exclusively with respect to the first grain size such that the second grain size is lengthened with respect to the first grain size in the direction of the movement of the thermal region***. Applicants respectfully submit that the Examiner has failed to establish a prima facie case that the proposed combinations of Shimizu, Fan, and Jiang teach this element.

On pages 5-6 of the Office Action, the Examiner generally asserts that Shimizu in view of Fan and Jiang teaches each element of independent claims 12, 23, and 25. Applicants note that while the Examiner asserts that Shimizu in view of Fan and Jiang teach applying a heat treatment to a metal-containing layer to produce grains that are enlarged compared to the grains prior to the heat treatment, the Examiner does not asserted that Shimizu, Fan, and Jiang, alone or in combination, teach the element of "the second grain size being enlarged exclusively with respect to the first grain size

such that the second grain size is lengthened with respect to the first grain size in the direction of the movement of the thermal region" as recited in the independent claims. Accordingly, the Examiner has not established a prima facie case that Shimizu in view of Fan and Jiang teach each element of claims 12, 23, and 25. Moreover, Applicants note that the proposed combination of Shimizu in view of Fan and Jiang fail to teach this element.

For at least these reasons, independent claims 12, 23, and 25, and any claim that depends on claim 12, is patentable over the combinations of Shimizu, Fan, Jiang and Higuchi as contemplated by the Examiner.

IV. Conclusion

In view of the amendments to the claims and the foregoing remarks, Applicants submit that the pending claims are in condition for allowance. Reconsideration is therefore respectfully requested. If there are any questions concerning this Response, the Examiner is asked to phone the undersigned attorney at (312) 321-4200.

Respectfully submitted,

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